Oneill Chiropractic Office & Family Residence,
Friends of the Buffalo Niagara Rivers (FBNR) Office
616 Potomac Ave
Buffalo, NY 14222

Julie Oneill, Patrick Oneill, (owners) Mike Hamilton (architect), Apollo Construction Co of WNY, Inc. (energy modeling, design and installation)

Applicant: Jeff Brennan, Building Scientist, Apollo Construction, 716/602-0960 cell

Conception Early 2004 – Completion Feb 2005

Project consideration and goal:
A gutted and vacant Victorian home overlooking historic Bidwell Parkway with unobstructed southerly exposure. Desire by owners to combine Chiropractic Office with residence and previously combined office of FBNR, restore and convert at risk property to mixed use residential in a sustainable project. Energy efficiency became a main goal once Apollo was brought in to upgrade building systems to allow for minimal fossil fuel use and downsize the HVAC system.

Renewable Energy:
Passive solar heated building – percent of heat provided by sun to be determined through future monitoring. To achieve this, super-insulation and super-windows were added to project. Other solar technologies considered but squeezed out by need for total renovation including PV and solar hot water.

Achieving the goal
Sustainable and/or locally sourced materials were used whenever possible environmental and transportation energy impacts. To transform a large old city home into a model in energy efficiency and passive solar design that would compare to any new construction, significant measures were undertaken to change standard construction techniques. Super insulation and air sealing was included to reduce the load in both heating and cooling seasons. As a medical office, central air conditioning was unavoidable at reasonable cost so the most efficient available equipment was installed. The size and configuration of the building proved to be a potential energy hog. With super windows (R-7 triple pane), super-insulation (R-32 walls, R-60 roof) and good air sealing using non-traditional materials and methods reduced the expected load in the advanced energy modeling software enough that two heating plants or sets of equipment were no longer needed and therefore the extra cost of better windows and insulation was largely paid for by the elimination of one heating plant. The higher and more effective thermal properties of the building shell allow for the sun to provide a larger portion of the heating energy, thereby offsetting fossil fuel natural gas. The energy portions of the renovation project required an investment well in excess of $65,000.

Obstacles
As a construction loan, bank draws are infrequent to pay for work done and so gap financing was one obstacle. Others include: material delays and non-availability or difficulty in finding them locally. Traditional contractor slow learning curve for a unique or new project.

Support
Lots of moral support from environmental and energy people. $2000 from NYSERDA small homes program Home Performance with Energy Star.

Payback
Simple payback was calculated at 7 years, but calculated as Savings to Investment Ratio the Cash Flow Net was positive. In other words, the monthly budget is better off by increasing the amount financed, and reaping the energy cost savings, which outweighs the amount added to mortgage. Payback is near on-target but too early to tell precisely.

Results
Once in a century renovation was done to highest possible energy efficiency standards including passive solar design, thereby reducing power-plant emissions and fossil fuel heat source emissions for generations to come, as well as reduced utility costs, higher comfort, health and safety, and building durability.

Different Next Time
Make provisions for greener or green living roof.

Positive Secondary Outcome
Education potential – the patient traffic and high visibility location will allow for much wider education of the project's special qualities and energy and environmental performance.

Green Power – Yes

Mentoring
The Oneill's, Oneill Chiropractic, Friends of the Buffalo Niagara Rivers and Apollo Construction will be eagerly helping explain, educate, give tours and open houses, give presentations and help design, construct or collaborate on any future projects that this experience can inform. Newsletters, Mass Media, word of mouth, personal visits, and plain visibility are just some of the avenues for this.